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**09/980486**INTERNATIONAL APPLICATION NO.  
**PCT/CN/00/00100**INTERNATIONAL FILING DATE  
**30 APRIL 2000**PRIORITY DATE CLAIMED  
**2 JUNE 1999**

TITLE OF INVENTION

**A SYSTEM ENABLING A USER TO SELECT INFORMATION NETWORKS AND A METHOD THEREOF**

APPLICANT(S) FOR DO/EO/US

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Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☐ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (24) indicated below.
4. ☐ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☐ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
  - a. ☐ is attached hereto (required only if not communicated by the International Bureau).
  - b. ☐ has been communicated by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
  - a. ☐ is attached hereto.
  - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
  - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
  - b. ☐ have been communicated by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☐ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
10. ☐ An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).
11. ☐ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☐ A copy of the International Search Report (PCT/ISA/210).

**Items 13 to 20 below concern document(s) or information included:**

13. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☐ A **FIRST** preliminary amendment.
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
17. ☐ A substitute specification.
18. ☐ A change of power of attorney and/or address letter.
19. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
20. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
21. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
22. ☐ Certificate of Mailing by Express Mail
23. ☒ Other items or information:

**WO 00/76128****Information Data Sheet**

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**23,077**

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3 DECEMBER 2001

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3/28/2

System and Method for Implementing Selection of Information Networks by  
User

#### Technical Field of the Invention

The present invention relates to information networks, and particularly to a system of the selection mechanism and security mechanism of information systems and corresponding method thereof.

#### Background of the Invention

The information systems referred to by the present invention include telephone networks, cable TV networks, data networks, IP networks such as computer Internet, broad band IP networks based on dense wavelength-division multiplexing (IP over DWDM), and etc., these information networks may be public information networks interconnected with one another, as well as physically isolated dedicated networks, jurisdiction networks, or secure networks. Jurisdiction networks refer to networks physically isolated information networks partitioned on the basis of territory such as country, province, city, district, county, and town, or on the basis of trade such as IT trade, metallurgy trade, financial and stock marketing trade, and etc.

Recently, each of the user' s telephone, TV set, and computer is connected to the telephone network, cable TV network and computer Internet, respectively, and once connected, there is no other choice, these circumstances result in the monopoly of the information network providers, which infringes upon the user' s benefits and hinders the rapid growth of the quality of service and economical benefits of the network provider due to monopoly.

Means to get rid of monopoly of network providers domestically and internationally is to disintegrate the information network providers, however, the local network monopoly has not been avoided, the users still have not much choice of their

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information networks. For example, China has stipulated recently that the services of telecommunication networks and cable TV networks may not overlap, this has the tendency of strengthening the monopoly of local networks.

As for the schema of decomposition of the telecommunication services of a country (e.g., China) into four bulky blocks of fixed (transfer network), mobile, satellite, and paging, the decomposed structure does not actually get rid of monopoly, but only dividing the monopoly of one party into respective monopolies of four parties, and whatever of the mobile, satellite, or paging must somewhat depend on the block of fixed one. For example, making IP telephone calls over Internet netted with satellite links, not only the quality of call is lower than that netted with land optical fibers, but also it should finally enter the telephone network portion of that fixed network; mobile communication is much more dependent on this fixed portion of that fixed dependent on this fixed portion, because the number of fixed telephones has exceeded one hundred millions, while that of the mobile telephone subscribers is only twenty millions, which should finally enter the telephone network portion of the fixed network; paging is more than likely, most subscribers paging via the fixed telephone; data communication is also not optimistic, the transmitting capacity of satellite links is not as high as that of the land optical fibers nowadays, while the time delay is far longer than that of the optical fibers. In other words, the block of the fixed ones is substantially monopolistic. There is no new operator in effective competition with it in the field of access networks.

On the other hand, the vigorous development of the computer Internet has caused severe threat on the security of information on the computer local area networks. The computer networks originally for facilitating the sharing of information resources have become convenient tools for stealing information, in addition, the stealing process is often undiscoverable and without any vestige. The basic reason of insecurity of the information on the computer local area network is that it is exposed

to the hackers almost all the time once getting access to the computer Internet.

In order to secure information on the computer networks, a conventional method is to set up a fire wall or proxy server between the computer local area network and the computer Internet to control the access to the computer local area networks from the computer Internet by the use of software means. However, due to technological reasons, it can not protect a computer having access to the Internet from attacks from the Internet. Therefore, the valuable secret information can not be secured.

Another scheme is the physical isolation of networks, which guarantees that there is no connection of the physical circuitry between the computer Internet and the valuable secret internal computer network. Thus, wiring of two networks need to be implemented in one office, and two computers should be put on the desk, which not only increases the cost of office information system, but also brings about inconvenience to the use of the information system; although two computers may share the display, keyboard, etc, but the networks can not be saved, and if several computer networks of different encryption levels should be added, it is impossible to install several computers into one box.

The unification of world economy urges the governments, enterprises and society to need more low price, in time and accurate information as well as high quality information services, such information and services can only be obtained by breaking the telecommunication monopoly and under the orderly market competition. Therefore, the establishment of an open and competitive (especially local area network competition) telecommunication and information market that guarantees information security has become a problem extremely extracting concerns and having to be solved as soon as possible.

It is an object of the present invention to provide a system and method for implementing selection of various information networks by a user, which enable the user to possess the right of choice among various information systems to form a

structure of competition of the information networks, and resolve the conflicts between the security of information of computer networks and the convenience of using computers to access the information networks, for protecting the internal computer networks against access from the Internet by hackers.

#### Summary of the Invention

To achieve the above mentioned object, the present invention provides a system for implementing selection of information networks by the user, comprising at least two information networks and a user terminal, characterized in further comprising:

A network selector with one end thereof connected to the user terminal for receiving and communicating user parameters and user's request to access a particular information network, and for controlling the user terminal;

A secure exchange connected to the other end of the network selector, the ports on the network side of the secure exchange are mutually physically isolated, the ports at the terminal side of the secure exchange are also mutually physically isolated; the secure exchange determines the validity of the user parameters and requests from the network selector, and accepts or rejects the user's access to the information network requested by the user based on the result of determination;

Said system for implementing selection of information networks by the user is characterized in: further comprising premises concentrator connected between the network selector and the secure exchange, for composing and decomposing the signals of the user terminal transferred from the network selector.

Said system for implementing selection of information networks by the user is characterized in further comprising a storey concentrator connected between the premises concentrator and the secure exchange, for concentrating the plurality of premises concentrators to multiplex and relay the signals from the premises concentrators.

Said system for implementing selection of information network by the user is characterized in that: the user terminals are one, two, or all of a computer, telephone, and TV set; the information networks are interconnected public information networks or physically isolated dedicated networks, secure networks or jurisdiction networks, the public information networks include telephone networks, TV networks, data networks, IP networks and broad band IP networks.

Said system for implementing selection of information networks by the user is characterized in that: the network selector is provided with radio frequency, RJ11 and/or RJ45 ports to couple to the user terminals; the network selector is coupled to the secure exchange with an RJ45 interface, the coupling uses one of the two undefined twisted pairs in an RJ45 interface to transfer said user parameters, requests and control information.

Said system for implementing selection of information networks by the user is characterized in that: the network selector is provided with radio frequency, RJ11 and/or RJ45 ports to couple with the user terminal; the network selector is coupled to the premises concentrator with an RJ45 interface, and the premises concentrator is coupled in turn to the secure exchange with an RJ45 port, one of the two undefined twisted pairs in the RJ45 port is used to transfer signals between the network selector, the premises concentrator and the secure exchange.

Said system for implementing selection of information networks by the user is characterized in that: the storey concentrator is provided with RJ45 ports on both terminal side and network side, the storey concentrator uses one of the two undefined twisted pairs in the RJ45 port to transfer parameters and signals, the twisted pair causes the secure exchange to switch between information networks with variations of voltage.

Said system for implementing selection of information networks by the user is character in that the other one of the two undefined twisted pairs in said RJ45 port is





serve the diskless computers, the file servers have the operating system and system data of each of the diskless computers, and working data of each user stored therein.

Said system for implementing selection of information networks by the user is characterized in that the user terminal is a computer with disk, the network selector instructs the computer with disk to initiate itself from the information network in the operating mode of a diskless computer when the computer with disk of a legal user having the right to use the information network accesses the information network, and instructs the local hard disk of the computer with disk to stop working.

Said system for implementing selection of information networks by the user is characterized in that the user terminal is an optical ROM computer, optical ROM computer reads out the operating system from the local optical ROM and initiates itself, but reads and writes all the data from/to the computer local area network to which it is connected.

Said system for implementing secure selection of information networks is characterized in that the user terminal is a computer, the network selector is embedded in the computer, the panel of the network selector is a constituent part of the panel of the computer or is combined with the optical disk drive or floppy disk drive.

Said system for implementing selection of information networks by the user is characterized in that the user terminal is a telephone, the telephone switches among a plurality of telephone networks via the network selector and secure exchange.

Said system for implementing selection of information networks by the user is characterized in that the user terminal is a TV set, the TV set switches among a plurality of TV networks via the network selector and secure exchange.

Said system for implementing selection of information networks by the user is characterized in that the user terminal is computer, the computer needs to be re-initiated and to refresh its memory, and to be re-connected to the selected information network each time the user making a selection from the connected selector to change

his/her choice of the information network.

The present invention further provides a system for implementing selection of information network by user, comprising at least two information networks and a user terminal, characterized in that said system further comprises a network selector connected between the user terminal and the information networks to receive and transfer user parameters and request for connecting to a particular information network, and to control the user terminal.

The present invention further provides a method for implementing selection of information networks by user, characterized comprising the steps of:

(1) a network selector receives and transfers user parameters and requests for connecting to a particular information network selected by the user, and controls the user terminal;

(2) a secure exchange, in response to the request for connecting to the particular information network selected by the user, determines the legality of the user's request based on the user parameters;

(3) the secure exchange accepts or rejects the user's request for connecting to the particular information network based on the result of determination.

Said method for implementing selection of information networks by the user is characterized in that step (1) further comprises the steps of:

a. the network selector reads the user identification card and password, obtains the user identity, determines the type of the user terminal, and generates user parameters including the user identity, his/her right to user encryption level of secure networks, jurisdiction networks or dedicated networks, and the type of the user terminal;

b. the network selector receives the request for selecting an information network by the user, including the number and the link path of the information network selected by the user; and

c. the network selector passes the user parameters and request to the secure exchange.

Said method for implementing secure selection of information networks is characterized in that step (2) further comprises the steps of:

d. determining whether the user accesses a secure network, jurisdiction network, or dedicated network;

e. if the user accesses a secure network, jurisdiction network or dedicated network, a determination is made of whether the user has the right to access this information network; and

f. if the user has the right to access the information network, a further determination is made of whether the terminal used by the user has a hard disk or memory for storing information.

Said method for implementing secure selection of information network is characterized in that step (3) further comprises the following steps:

g. if the user does not access a secure network, jurisdiction network or dedicated network, then the public information network is accessed for the user;

h. if the user has no right to access a secure network, jurisdiction network or dedicated network, access to the information network is rejected; and

i. if the user has the right to access the secure network, jurisdiction network or dedicated network, and the terminal used by user has no hard disk or memory for storing information, then the network requested to be accessed by the user is accessed;

if the user has the right to access the secure network, jurisdiction network or dedicated network, but the user terminal has a hard disk or memory for storing information, the secure exchange and network selector access the information network for the user under the condition that the user has stopped the operation of the hard disk and refreshed the memory.

Said method for implementing selection of information networks by the user is

characterized in that a premises concentrator is coupled between the network selector and the secure exchange for composing and decomposing the signals of the user terminals transferred by the network selector.

Said method for implementing selection of information networks by the user is characterized in that a storey concentrator is coupled between the premises concentrator and the secure exchange for concentrating the plurality of premises concentrators, and for multiplexing and relaying the signals.

Said method for implementing selection of information networks by the user is characterized in that one of the two undefined twisted pairs in the RJ45 port for connecting the network selector, premises concentrator, storey concentrator, ad secure exchange is used to transfer signals.

Said method for implementing selection of information networks by the user is characterized in that the other one of the two undefined twisted pairs of the RJ45 port is used for accessing the telephone network.

Said method for implementing selection of information networks by the user is characterized in that the user parameters transferred to the secure exchange via the network selector and identified by the secure exchange include the fingerprint information of the user.

Said method for implementing selection of information networks by the user is characterized in that the user parameters transferred to the secure exchange via the network selector and identified by the secure exchange include the face image information of the user.

Said method for implementing selection of information networks by the user is characterized in that the user terminal is one or two or all of a computer, telephone and TV set; the information networks are interconnected public information networks or physically isolated dedicated networks, secure networks or jurisdiction networks, the public information networks include the telephone networks, TV networks, data

networks, IP networks and broad band IP networks.

Said method for implementing selection of information networks by the user is characterized in that the user terminal is a telephone, the telephone switches among a plurality of telephone networks via the network selector and secure exchange.

Said method for implementing selection of information networks by the user is characterized in that the user terminal is a TV set, the TV set switches among a plurality of TV networks via the network selector and secure exchange.

#### Industrial Applicability

The system and method of the present invention for implementing selection of information networks by the user enable the user to realize free selection of information networks by manipulating the mutually cooperative relationships between the handy network selector and the remote secure exchange, to protect the selected network from attacks by other networks to guarantee the security of information, and to gain the following economical and social benefits:

1. Enabling the users to have their rights of selection and to break the monopoly of information networks, which not only reduces the prices set by the information network companies to benefit the users due to market competition, but also motivates the potentials of the information network companies to increase the economical benefits of those companies due to market competition, the final result is that common improvement of the society can be stimulated.

2. Not only guaranteeing that there will be no opportunity for the hackers on the computer Internet to attack the information on a secure information network, but also capable of limiting the number of persons accessing a secure network and their activities to reduce the difficulties for the police to investigate crimes, thereby the security of the information networks and the public confidence of the information networks can be improved.

3. The present invention permits virtual increment and decrement of the number

of the security level of the information network, therefore, it is applicable to both small organizations with lower requirements on security and two physically isolated information networks, and large transterritorial and transnational organizations with large personnel, complex service flows and high sensitivity on the security of computer network information of fine security levels, especially governments, transnational companies, and etc.

4. The present system enables computers to be used by families as simple and convenient as telephones and maintenance of the normal operations of computers without high expertise, because of the reduction of software and hardware of the network terminal computers, the transferring of operation capacity to the central server, and the flexible and co-ordination management of centralized computation and distributed computation. At the same time, the system utilizes the advantages of the existing telephone networks, cable TV networks and computer networks to their greatest extents without attempting to replace them, making the best use of everything.

#### BRIEF Description of the Drawings

The system and method of the present invention for implementing selection of information networks by the user will be described in great details in the following in conjunction with the accompanying drawings and particular embodiments.

Fig.1 is a structural diagram of the network selector according to the present invention.

Fig.2 is a structural diagram of the secure exchange according to the present invention.

Fig.3 is a structural diagram of the RJ45 plus interface according to the present invention.

Fig.4 is a structural diagram of the storey concentrator according to the present invention,

Fig.5 is a structural diagram of the premises concentrator according to the



the same type in the present invention, so the corresponding computer local area network will be also more than one ( as shown in Fig.6).

The user terminal may be a telephone 572, TV set 573, computer 571, as well as other types of user terminals.

Where, as shown in Fig.7, the network selector 60 is coupled with said telephone 572, TV set 574 and/or computer 571, respectively, for receiving user parameters, receiving and transferring the user' s request for accessing a particular information network, the network selector 60 also controls the hard disk of the computer 571. The network selector 60 may also be provided with a camera.

As for the premises concentrator 61, the other end of the network selector 60 is coupled to the terminal side interface of the premises concentrator 61, while the network side port of the premises concentrator 61 is coupled to a storey concentrator 59, the premises concentrator 61 is used for composing or decomposing the signals of different user terminals.

The storey concentrator 59 is coupled between the premises concentrator 61 and the secure exchange 58, for concentrating a plurality of premises concentrators 61 to multiplex and relay the signals of those premises concentrators 61.

One side of the secure exchange 58 (the terminal side) is coupled to a premises concentrator 61 or a storey concentrator 59, and the other side (the network side) is coupled to local area networks corresponding to various information networks of telephone network 521 or cable TV network 522, data network 523, broad band IP network 524(including LAN53' , LAN54' , LAN56' , LAN523' , LAN524' , telephone access network and CATV, wherein the telephone access network and CATV are not shown explicitly in Fig.6). The ports on the terminal side are physically isolated from each other, and the ports on the network side are also physically isolated from each other. The secure exchange 58 determines the legality for the user to access the information network based on the user parameters and request from the network



selector on the terminal side, and accepts or rejects to connect the computer 571, TV set 573 and telephone 572 coupled to the network selector 60 to a particular information network on the network side.

Several secure exchanges may be connected together to form a network in a small area standing for said secure exchange 58, with the increase of the number of users, and for the convenience of description, the present invention takes this network in the small area as a single secure exchange, because the functionality implemented by this network in the small area is the same as that of the secure exchange.

In the present invention, the overall structure of the telephone 572, TV set 573, computer 571, and the network selector 60 and premises concentrator 61 connected thereto is referred to as a home/office network 631.

The network selector 60 according to the present invention uses RJ11, RF and/or RJ45 ports to couple with each of the telephone 572, TV set 573 and/or computer 571, the network selector 60 is coupled to the premises concentrator 61 with RJ45, the premises concentrator 61 is coupled in turn to the storey concentrator 59 with the RJ45 interface, and the storey concentrator 59 is finally coupled to the secure exchange 58 with RJ45. All of those connections transfer said user parameters, requests and control information to the secure exchange 58 using one of the two undefined twisted pairs in the RJ45 interface, the secure exchange 58 is coupled to the computer local area networks (LAN53' , LAN54' , LAN56' , LAN523' , LAN524' ) corresponding to each of the information networks on the IP network gateway via its network side ports, and, in turn, connected to various information networks via the wide area network ports of both of them.

Since the RJ45 criteria define that two twisted pairs are used for the transmitting of various protocols and network data of the ethernet, the present invention uses one of the other two pairs (as shown in Fig.3) to transmit information of user identity and right of the user to user the network encryption level and the like. T1 and T2 of Fig.3

represent any one of two undefined twisted pairs, T3 and T4 are another pair dedicated to connect to the telephone lines, while their notions on the 4<sup>th</sup>, 5<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> cores are only for exemplary purpose. The voltage across T1 and T2 may be +5V, +12V, +24V -5V, -12V or -24V, the variation of voltage represents the variation of the information network accessed by the user terminal, thus the user selects an information network not by changing the IP address, but by the switching of physical circuit, thereby no attack can exist between information networks, guaranteeing the security of information on the network.

The definitions of each of the cores are:

1. data transmitting "+"
2. data transmitting "-"
3. data receiving "+"
4. encryption level, identity authentication, etc transmitting "+"
5. encryption level, identity authentication, etc transmitting "-"
6. data receiving "-"
- 7, 8 used for accessing to public telephone network

The reason for using T3 and T4 to access the telephone network is that the too tightly binding of the speech communication and the data communication is not desired, that is, when a user selects freely a computer network for multimedia communication (including IP telephone), he is not forbidden to select the competitive public telephone network 521. However, for departments possessing sensitive information, the network selector 60 will block the connection of T3 and T4 to the public telephone network 521 when it connects the computer terminal of the user to the secure network 53.

The so defined RJ45 is referred to as RJ45 plus by the present invention. Therefore, both the terminal side port 601 and the network side port 602 of the network selector 60 are FJ45 plus ones, the terminal side port 581 of the secure

exchange 58 is an RJ45 plus one, the network side port 582 of the secure exchange 58 is an RJ45 one, while both port 591 and 592 of the storey concentrator 59 are RJ45 plus ones.

In case of the distance between the network selector 60 and the secure exchange 58 is within 100m, the storey concentrator 59 can be omitted.

In case of there are only two physically isolated ethernet, and the interfaces thereof are located in one room, both the storey concentrator 59 and the secure exchange 58 may be omitted.

In case of the distance between the network selector 60 and the secure exchange 58 exceeds 100m, the ADSL line or cable TV line may be used.

In case it is necessary for the rate of the ethernet to exceed 100Mbps, optical fiber 586 or other broad band transmission techniques and devices can be used instead, and one channel therein can be designated as a control channel for transmitting the user parameters and control information.

The above mentioned computer 572 may be a diskless computer, a computer with disk a computer with read only optical disk or a graphic terminal.

The network selector 60 connected to the TV set 573 is used for selecting cable TV network 522 and video on demand, the network selector 60 downloads the program lists of the TV stations and displays them on the screen of the TV set, and then the user selects and interesting program.

The so called diskless computer mentioned above refers to one without any system hard disk to boot up the machine itself and any user hard disk to store data, but with internal memory, central processing unit (CPU), mother board, rack, display, keyboard, etc. The diskless computer can only read the operating system associated with the computer from the file server via the ethernet into its local memory using the above mentioned network access scheme, and then initiating relative device from the local memory.

For computers with disks, the network selector 60 connected thereto instructs it to boot up itself from the network in the operating scheme of a diskless computer, and having the local hard disk stopping operating. A computer with read only optical disk is allowed to read out the operating system from the local read only optical disk and to initiate itself, but all the data are read from the accessed information network.

The network selector 60 is further provided with an IC card drive for reading out the user information stored in the user identification card 64. The secure exchange 58 is also provided with a drive for reading IC cards for the secure exchange to identify the management identification card of the system manager and to generate the user identification cards.

The network selector 60 recognizes the network to which the user expects to connect based on the number set by the user. Since the network selector includes a card reader, the network selector 60 has the functionality of reading the information on the user identification card 64 inserted into the card reader, when no user identification card 64 is inserted, the network selector 60 sets the number to 0 automatically, indicating that the telephone 572, TV set 573 and computer 571 connected by the network selector 60 will access the default public information network 52. Especially, each time a user changes his/her selection of an information network on the network selector 60 connected by computer 571, it will cause the computer 571 to be re-initiated and re-connected to the new information network.

The network selector 60 and secure exchange 58 may authenticate the legality of the user identity based on the fingerprint information or face image information of the user when the user selects a particular information network.

The network selector 60 may also be embedded in the computer 571, such that the panel of the network selector 60 constitutes part of the panel of the computer 571 or combines with the optical disk drive or floppy disk drive, and the network number display 604, the network number selecting button 603 and network number

confirming button 605 may also be integrated into the panel of the optical disk drive or the floppy disk drive, and two information signal lines may be led out to the T1 and T2 of the RJ45 interface of the ethernet (see Fig.3), or to the T1 and T2 of the RJ45 interface of the Mother board. The advantages of this design are energy saving, convenient to use and occupying less space.

The network selector 60 connected to the telephone 572 may also be embedded in the premises concentrator 61 behind the RJ11 port, the network selector 60 selects corresponding information network by recognizing the dialing tone of the telephone 572.

The secure exchange 58 guarantees that the dedicated network 54, secure network 53, jurisdiction network 56 and the public information network 52 are mutually isolated. The secure exchange 58 also comprises a card reader, only the system manager owns the management card of the secure exchange, and only the system manager has the right to maintain the secure exchange 58. The system manager sets the information of the encryption level, right and the like of each user on the secure exchange 58, and produces the user identification card 64 for each of the users.

There are only one RJ45 plus port 592 and one RF port 593 on the network side of said storey concentrator 59, and only one RF port 594 and a plurality of RJ45 plus ports 591 on the terminal side thereof, the storey concentrator 59 is without any IC card, the storey concentrator 59 serves to extend the number of users accessing the networks.

The system of the present invention employs conventional tree wiring structure, the computer 571, TV set 573 and telephone 572 are located on the leaf positions connecting to the terminal side RJ45 plus port 601, RJ11 port or RF port 611 of respective network selector 60 (Fig.1), which is in turn connected to a premises concentrator via the network side RJ45 plus port 602 or RJ port 612 (Fig.5), one or

more premises concentrators 61 are connected to the terminal side ports 591 and 594 of a storey concentrator 59 (Fig.4) to form a home/office network 631 (Fig.7), the home/office network 631 is in turn connected to the terminal side port of the secure exchange 58 via the network side port 592 of the storey concentrator 59 (Fig.2), and all the wiring criteria from the network selector 60 to the terminal side port of the secure exchange 58 use the Type 3 and Type 5 twisted pair RJ45 plus (Fig.3) or optical fiber 586, cable TV copper cable 581. The secure exchange 58 in turn connected to the local networks corresponding to various information networks via the network side RJ45 ports 583, the cable TV network side ports 582 or optical receiving/transmitting terminals 584, 585, these information networks may be interconnected public information networks 52, or may be physically isolated dedicated networks 54 or secure networks 53 and the like. All the computer local area networks (LAN53' , LAN54' , LAN56' , LAN523' , LAN524' , etc) connected with the secure exchange 58 are provided with file servers operating with the diskless computer, the file servers store the initiating program and the system data of each of the diskless computers and working data of each of the users, in addition ,the computer local area networks are provided with domain name servers, www servers, FTP servers, and etc.

Recently, many users have integratively wired two physically isolated computer 571 ethernets into the same room ,one connected to the internet 528, and the other connected to a secure network 53 or a dedicated network 54, for these cases, only a network selector 60 is needed to connect the diskless computer (or the computer with disk under the control of the network selector 60) to the respective information network based on the selection of the user, without the need for a secure exchange 58 and a storey concentrator 59. However, if the diskless computer is relatively distant from the ports of the two networks, a secure exchange 58 is needed to be connected in-between, as shown in Fig.6a.

Each of the above mentioned networks to be selected by the users, especially the public information networks 52, is in competition with each other due to being selectable by the users.

The method for implementing selection of information networks by the user according to the present invention is characterized in that: a user sets the number of the information network to be connected on the network selector 60; the network selector 60 checks the inserted user identification card and the user's face image obtained by the camera to recognize the user's identity, his/her right to use the network encryption level, the number of the network and other parameters, and transmitting these parameters in combination as a request to the secure exchange 58 via the T1, T2 of RJ45 plus; if no user identification card 64 is detected by the network selector 60, then the network number is automatically set to 0, indicating that the user accesses the public information network 52 only; after receiving the request from T1 and T2 of RJ45 plus, the secure exchange 58 checks whether the user is a legal user and has the right to access the information network he/she desired to access based on the parameters of user password, face image, and etc stored in the authentication server, and connects to the information network the user desired to access after confirmation of the parameters. It may be selected to check the user identification card only, or to check both the user identification card and fingerprint, or to check all of the user identification card, fingerprint and face image. The flowchart of the method is shown in Fig.8a.

The particular flow is as follows:

Receiving user parameters and request;

In response to the user's request for accessing a particular information network, authenticating the legality of the user based on said user parameters;

Accepting or rejecting the user's request for accessing the particular information network based on the results of authentication;

Said user parameters including: user identity, face image, encryption key, the right of encryption level for the user to access said information network, the number and link path of the information network currently requested to access by the user, whether requesting to initiate the local computer from said information network, whether there being a system disk, whether it being a read only optical disk computer or graphic terminal, and etc;

The authentication of the user' s legality including determining whether the user accessing and having the right for accessing a secure network 53, jurisdiction network 56 or dedicated network 54;

If said user does not access a secure network 53, jurisdiction network 56 or dedicated network 54, connecting to the public information network 52 for the user;

If said user accesses a secure network 53, jurisdiction network 56 or dedicated network 54, determining whether the user having the right for accessing the information network; if no right, rejecting to connect to the secure network 53, jurisdiction network 56 or dedicated network 54;

If said user has the right for accessing the secure network 53, jurisdiction network 56 or dedicated network 54, then determining whether the local user terminal used by the user having a hard disk or memory to store information, if so, connecting to the information network under the premise of stopping the operation of the hard disk and/or refreshing the memory; otherwise, connecting to the information network; and

Providing the services of the information network after connecting to said information network.

As for the computer 571, each time it changes to another information network, the computer 571 shall be re-powered, its memory and other dynamic memories shall be refreshed, and if necessary, they shall be refreshed for several times in a short period, for example in one second, to ensure that they will not be stored with the



information of the previous network when accessing other networks; after the file server has confirmed the user's request, it transfers the bootstrap program of the diskless computer to initiate the diskless computer accordingly, and after the user has keyed in the user name and password, it enters normal operating status. The TV set 573 and telephone 572(if without any memory) is not necessary to perform security check temporarily.

Fig.8 is a flowchart of the method for implementing both selection of information networks and protection from attacks, the following is a description of the flowchart in further details.

The parameters of the user identity, encryption key, the right for the user to access a particular information network, the number of the information network currently to be accessed by the user, whether the local computer being required to be initiated from the particular information, whether the computer having a data disk, and etc are obtained in step A1, then the process proceeds to step A2, if a diskless computer is determined in A2, the process proceeds to A3, otherwise it is a computer with disk and the process proceeds to B1, if the computer with disk does not access the public information network 52, then the network selector 60 instructs the computer hard disk to stop working during the period of access in step B2, which implies that the computer with disk should be initiated and run in the same manner as a diskless computer, then the process proceeds to A3, if the user is determined to be illegal in step A3, then it alarms in step C1 and the use of the network by the user is stopped, the user is prompted to change his/her parameters, once the user has changed the parameter in step C2, the process returns to A1, if the user is determined to be legal in step A3, then the process proceeds to step A4 to connect the line for the user and to run normally until the user parameters have been changed, then the process returns to step A1 from step A5.

The functionality of Fig.8 is implemented by the co-ordination of the software

of the network selector 60 and the secure exchange 58. The main function of the network selection 60 is to provide the associated parameters of the user to the secure exchange 58, and to get ready for stopping the user of a particular information network by an illegal user at any time. The main function of the secure exchange 58 is to check the legality of the user, and to connect to information network for a legal user. A further description is given below with reference to Figs. 9 and 10.

Referring to Fig.9, the network selector 60 determines whether the connected computer 571 should be initiated locally in step 11. The network selector 60 determines that the computer 571 has a system hard disk in step 12 and, for the sake of information security, the network selector 60 will prohibit the computer 571 to access the secure network 53, dedicated network 54 or jurisdiction network 56, but allows it to access the public information network 52, so the number of the network is forced to be set to 0 in step 14. Step 13 indicates that the computer 571 is a diskless computer and it has the right to access each of the secure networks 53, jurisdiction networks 56 or dedicated networks 54, but the user is required to insert his/her identification card 64 for the network selector 60 to obtain the user's identity information, which is combined with the number of the information network selected by the user in step 15, and transmitted to the secure exchange 58 via T1 and T2 of the RJ45 plus in step 17. If it is determined in step 16 that the number of the network selected by the user is 1 through 7 (this classification of networks is exemplary only) and there is a local hard disk, then the computer is initiated from the network and the power supply of the local hard disk is cut off during the access to the secure network 53, jurisdiction network 56 or dedicated network 54. Thus, the information of the secure network 53, jurisdiction network 56 or dedicated network 54 can be protected from downloading to the hard disk of the computer, otherwise, secret information may be divulged when the computer accesses other information network subsequently. If no user identification card 64 is received by the network selector 60, the number of

the network is set to 0 automatically in step 14, indicating that the user will access the public information network 52 only. The response on the legality of the user from the secure exchange 58 is waited for in step 18, if the result is illegal, then the process proceeds to step 19 to stop the access of the network. The network selector waits for the user to change his/her identify or the number of the network in step 20, i.e. changing to another user, if not, whether the current user wishes to change the connected information network, if either one of those changes occurs, the process proceeds to steps 21 and 17, and loops back.

Referring to Fig.10, the secure exchange 58 waits for the request from the network selector 60 via T1 and T2 of the RJ45 plus in step 41, when there is no request, it waits in a loop, when a request comes, the process proceeds to step 42, there must be a change of the network number or a change of the user identity, if it is a change of the user identity, and the user has the right to access the current information network, then the information network to be accessed by the current user is connected to, these are performed in steps 43, 46 and 47, then the process returns to step 41 to wait; if it is a change of the user identity but the user have no right to access the current secure network 53, jurisdiction network 56 or dedicated network 54, the process proceeds to step 45, stops connecting ,and reports an error to the network selector 60. If there is no change of the user identity, then it must be a change of the network number, if it is determined in step 44 that the user has the right to access the secure network 53, jurisdiction network 56 or dedicated network 54, the current file server is notified of to save its current status, and the file server of the corresponding information network is connected to based on the user identity, network number, and etc. Then the process returns to step 41.

Since the public information network 52, secure network 53, jurisdiction network 56 or dedicated network 54 are mutually physically isolated, the data can not be read from each other, especially it is impossible to attack other information



network selector 60 to select a satisfactory telephone network 521 or cable TV network 522 to provide services for him/her, thus causing competitions between the telecommunication network between the cable TV networks, and between the telephone networks and the cable TV networks and thus breaking the monopoly of the local network.

The end user network 51 system of the present invention may alleviate the operating duty of the local network, reduce the complexity of the local network, and increase the concentration of the information networks. The end user designates a network to be connected to with the network selector, and realizes selection of networks under the help of the secure exchange 58, the above mentioned telephone network 520 may further extend to a telecommunication network to cause a fully competitive situation of telecommunication to come into being.

At that time, when a user calls on the telephone: the user picks up the telephone hand set and dials the telephone number of the called party, a plurality of telephone network names, the unit prices needed to complete this call by each of those telephone networks, the expected value of the call quality level, and etc will be displayed on the screen of the network selector 60 to which the telephone 572 is connected, the user may select a particular network on the network selector 60 based on these information, and communicates with it with the help of the secure exchange 58, the user may detect the performance-price-ratio of other telecommunication networks during the call, and thereby to switch to a more satisfactory network. The user may also specify to use the network of a specific long distance telecommunication company, and request it to connect automatically with the network of the local telephone company selected by the user. Similarly, the user may select a satisfactory network at any time for other dialing services.

The obtaining of telecommunication level quality resides in that the line switching technique thereof ensure the user to monopolize a channel from end to end.

According to the system and method of the present invention, the end user network 51 is in fact an extended computer local area network, the user is ensured to monopolize at least 10Mbps of band width from his/her computer to the secure exchange, and there is no change in the telephone network 521, cable TV network 522 and computer network outside the secure exchange 58. One voice channel is only 64kbps, one channel of uncompressed TV signal only occupies 6Mbps, while the throughput of a modern line rate routing exchange can achieve 20 Gbps and more, which can support more than 3000 TV sets to demand video simultaneously, more than 3 millions of telephone to call simultaneously, or more than 20000 computers to perform networking operation simultaneously. The system and method of the present invention do not force the telephone network, TV network and computer network to be involved in the so called "merging of three networks", but continue to utilize the advantages of each of the networks, therefore, when a user needs to call, the secure exchange 58 of the present invention can help the user to communicate with the traditional telephone network.

According to the present invention, the TV set, video telephone and computer can also be combined to share the network selector, the network selector is provided with three sets of selection buttons, controlling the selections of the cable TV network 522, computer network and video telephone network, respectively. With the help of the secure exchange 58, the computer network transmits the up link command of the VOD, and the cable TV network transmits the down link signal of the VOD to be played on the combination or displayed on an existing analog TV set after D/A conversion. With the selection mechanism of the information network, the VOD utilizes the up link capability of the telephone network and computer network without the necessity of the bi-directional reform of the cable TV network 522. In addition, the up link channel can further be implemented with wireless mobile network or wireless fixed network.

What is claimed is:

1. A system for implementing selection of information networks by user, including at least two information networks and a user terminal, characterized in further comprising:

network selectors, with one end thereof connected to the user terminal for receiving and transferring user parameters and requests for connecting to a particular information network, and for controlling the user terminal;

a secure exchange, connected to the other end of each of the network selectors, the network side ports of the secure exchange are physically isolated from each other, the terminal side ports of the secure exchange are also physically isolated from each other; the secure exchange determines the legality of the user parameters and requests from the network selectors, and accepts or rejects to access the particular information network requested by the user based on the result of the determination.

2. The system for implementing selection of information networks by user according to claim 1, characterized in further comprising a premises concentrator, connected between the network selector and the secure exchange, for composing and decomposing the signals of the user terminals transferred by the network selector.

3. The system for implementing selection of information networks by user according to claim 2, characterized in further comprising a storey concentrator, connected between the premises concentrator and the secure exchange, for concentrating a plurality of premises concentrators and for multiplexing and relaying the signals of the premises concentrators.

4. The system for implementing selection of information networks by user according to claim 1, 2, or 3, characterized in that the user terminal is one, two, or all of a computer, a telephone and a TV set; the information networks are interconnected public information networks or physically isolated dedicated networks, secure networks or jurisdiction networks, the public information networks include telephone

networks, TV networks, data networks, IP networks, and broad band IP networks.

5. The system for implementing selection of information networks by user according to claim 1, characterized in that the network selector is provided with an RF, RJ 11 and/or RJ 45 port to connect with the user terminal; the network selector is connected to the secure exchange with an RJ 45 interface, the connection transfers said user parameters, requests and control information using one of the two undefined twisted pairs in the RJ 45 interface.

6. The system for implementing selection of information networks by user according to claim 2, characterized in that the network selector is provided with an RF, RJ 11 and/or RJ 45 port, for connecting to the user terminal; the network selector and the premises concentrator are connected with an RJ 45 interface, the premises concentrator is connected in turn to the secure exchange with an RJ 45 port, the signals are transferred between the network selector, the premises concentrator and the secure exchange using one of the two undefined twisted pairs in the RJ 45 port.

7. The system for implementing selection of information networks by user according to claim 3, characterized in that RJ 45 ports are provided on both the terminal side and the network side of the storey concentrator, the storey concentrator uses one of the two undefined twisted pairs in the RJ 45 port to transfer parameters and signals, the twisted pair causes the secure exchange to switch among the information networks with the variations of voltage.

8. The system for implementing selection of information networks by user according to claim 5, 6, or 7, characterized in that the other one of the two undefined twisted pairs in said RJ 45 port is used to connect to the telephone networks.

9. The system for implementing selection of information networks by user according to claim 5, 6, or 7, characterized in that said connecting lines use optical fibers, cable TV lines or ADSL lines to transfer parameters and signals.

10. The system for implementing selection of information networks by user



according to claim 5, 6, or 7, characterized in that the secure exchange is connected to an authentication server, the secure exchange uses the existing user parameters stored in the authentication server to determine the legality of the current user, the secure exchange is connected to the computer local area network and IP gateway corresponding to each of the information networks via the network side RJ 45 port, the TV network RF port or optical receiving and transmitting terminal, and connected to each of the information networks via the wide area network interface of the computer local area network and the IP gateway.

11. The system for implementing selecting of information networks by user according to claim 1, 2, or 3, characterized in that the network selector is provided with an IC card drive, for reading out the user information stored in user identification card.

12. The system for implementing selection of information networks by user according to claim 11, characterized that the secure exchange is provided with a drive for reading IC cards to identify the management identity of system manager, the secure exchange generates user identification cards based on the user information set on the secure exchange by the system manager.

13. The system for implementing selection of information networks by user according to claim 1, characterized in that the user parameters transferred to the secure exchange via the network selector and authenticated by the secure exchange include the fingerprint information of the user.

14. The system for implementing selection of information networks by user according to claim 1, characterized that the user parameters transferred to the secure exchange via the network selector and authenticated by the secure exchange include the face image information of the user.

15. The system for implementing selection of information networks by user according to claim 1, 2, or 3, characterized in that the user terminal is a diskless

computer, and all the computer local area networks connected to the secure exchange are provided with a file server for operating with the diskless computer, the file server has the operating system and system data of each of the diskless computer and the operating data of each of the user stored therein.

16. The system for implementing selection of information networks by user according to claim 1, 2, or 3, characterized in that the user terminal is a computer with disk, when a user of the computer with disk having the right to use an information network accesses the information network, the network selector instructs the computer with disk to initiate itself from the information network in the operating manner of a diskless computer, and instructs the local hard disk of the computer with disk to stop operating.

17. The system for implementing selection of information networks by user according to claim 1, 2, or 3, characterized in that the user terminal is a computer with read only optical disk, the computer with read only optical disk reads out the operating system from the local read only optical disk and initiates itself, but all the data it reads and writes are on the computer local area network to which it is connected.

18. The system for implementing selection of information networks by user according to claim 1, characterized in that the user terminal is a computer, the network selector is embedded in the computer, and the panel of the network selector is a constituent part of the panel of the computer or is combined with the optical disk drive or the floppy disk drive.

19. The system for implementing selection of information networks by user according to claim 1, 2, or 3, characterized in that the user terminal is a telephone, the telephone switches among a plurality of telephone networks via the network selector and the secure exchange.

20. The system for implementing selection of information networks by user

according to claim 1, 2, or 3, characterized in that the user terminal is a TV set, the TV set switches among a plurality of TV networks via the network selector and the secure exchange.

21. The system for implementing selection of information networks by user according to claim 1, 2, or 3, characterized in that the user terminal is a computer, when the user changes the selection of an information network from the network selector to which the computer is connected, the computer should be re-initiated with the memory therein being refreshed, and re-connected to the information network newly selected.

22. A system for implementing selection of information networks by user, including at least two information networks and a user terminal, characterized in further comprising a network selector, connected between the user terminal and the information networks, for receiving and transferring user parameters and request for connecting to a particular information network, and for controlling the user terminal.

23. A method for implementing selection of information networks by user, characterized in comprising the steps of:

(1) a network selector receives and transfers user parameters and user request for selectively connecting to a particular information network, and controls the user terminal;

(2) a secure exchange connects to the particular information network in response to the request of the user from the network selector, and determines the legality of the user's request based on the user parameters; and

(3) the secure exchange accepts or rejects the user's request for connecting to a particular information network based on the result of determination.

24. The method for implementing selection of information networks by user according to claim 23, characterized in the step (1) further comprising the steps of:

a. the network selector reads the user's identification card and encryption key

to obtain the user's identity and determine the type of the user terminal device, and generates user parameters including the user identity, the right to use the security level of a secure network, jurisdiction network or dedicated network, and the type of the user terminal;

b. the network selector receives the user's request of selecting an information network, including the number and link path of the information network selected by the user; and

c. the network selector transfers the user parameters and the user's request to the secure exchange.

25. The method for implementing selection of information networks by user according to claim 23, characterized in that the step (2) further comprising the steps of:

d. determining whether the user accesses a secure network, jurisdiction network, or dedicated network;

e. if the user accesses the secure network, jurisdiction network, or dedicated network, further determining whether the user has the right to use this information network; and

f. if the user has the right to use this information network, further determining whether the terminal device used by the user is provided with a hard disk or memory to store information.

26. The method for implementing selection of information networks by user according to claim 25, characterized in the step (3) further comprising the steps of:

g. connecting the user to the public information network, if the user does not access the secure network, jurisdiction network, or dedicated network;

h. rejecting to connect to the information network, if the user is of no right to use the secure network, jurisdiction network or dedicated network; and

i. connecting to the information network requested by the user, if the user is of

the right to use the secure network jurisdiction network or dedicated network and the user terminal used by the user is not provided with hard disk or memory for storing information;

the secure exchange and network selector connecting to the information network for the user under the conditions that the user has stopped the operation of the hard disk and refreshing of the memory, if the user is of the right to use the secure network, jurisdiction network, or dedicated network but the user terminal is provided with a hard disk or memory for storing information.

27. The method for implementing selection of information networks by user according to claim 23, characterized in that a premises concentrator is connected between the network selector and the secure exchange, for composing and decomposing the signals of the user terminals transferred by the network selector.

28. The method for implementing selection of information networks by user according to claim 27, characterized in that a storey concentrator is connected between the premises concentrator and the secure exchange for concentrating the plurality of premises concentrators, and multiplexing and relaying the signals.

29. The method for implementing selection of information networks by user according to claim 28, characterized in that all the connections between the network selector, premises concentrator, storey concentrator and secure exchange use one of the two undefined twisted pairs in an RJ45 port to transfer signals.

30. The method for implementing selection of information networks by user according to claim 29, characterized in that the other one of the two undefined twisted pairs in the RJ45 port is used for connecting to the telephone network.

31. The method for implementing selection of information networks by user according to claim 23, characterized in that the user parameters transferred to the secure exchange via the network selector and authenticated by the secure exchange include the fingerprint information of the user.

32. The method for implementing selection of information networks by user according to claim 23, characterized in that the user parameters transferred to the secure exchange via the network selector and authenticated by the secure exchange include the face image information of the user.

33. The method for implementing selection of information networks by user according to claim 23, characterized in that the user terminal is one, two, or all of a computer, telephone and TV set; the information networks are interconnected public information networks, or physically isolated dedicated networks, secure networks or jurisdiction networks, the public information networks include telephone networks, TV networks, data networks, IP networks and broad band IP networks..

34. The method for implementing selection of information networks by user according to claim 23, characterized in that the user terminal is a telephone, the telephone switches among a plurality of telephone networks via the network selector and the secure exchange.

35. The method for implementing selection of information networks by user according to claim 23, characterized in that the user terminal is a TV set, the TV set switches among a plurality of TV networks via the network selector and secure exchange.

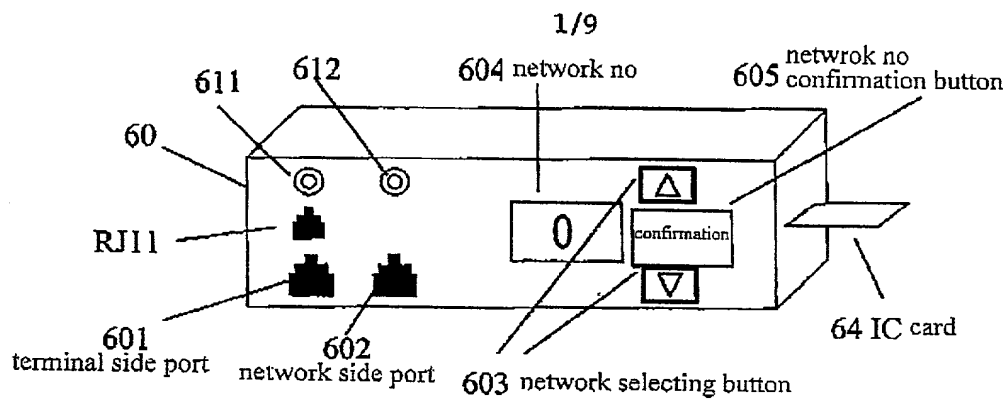


Fig. 1

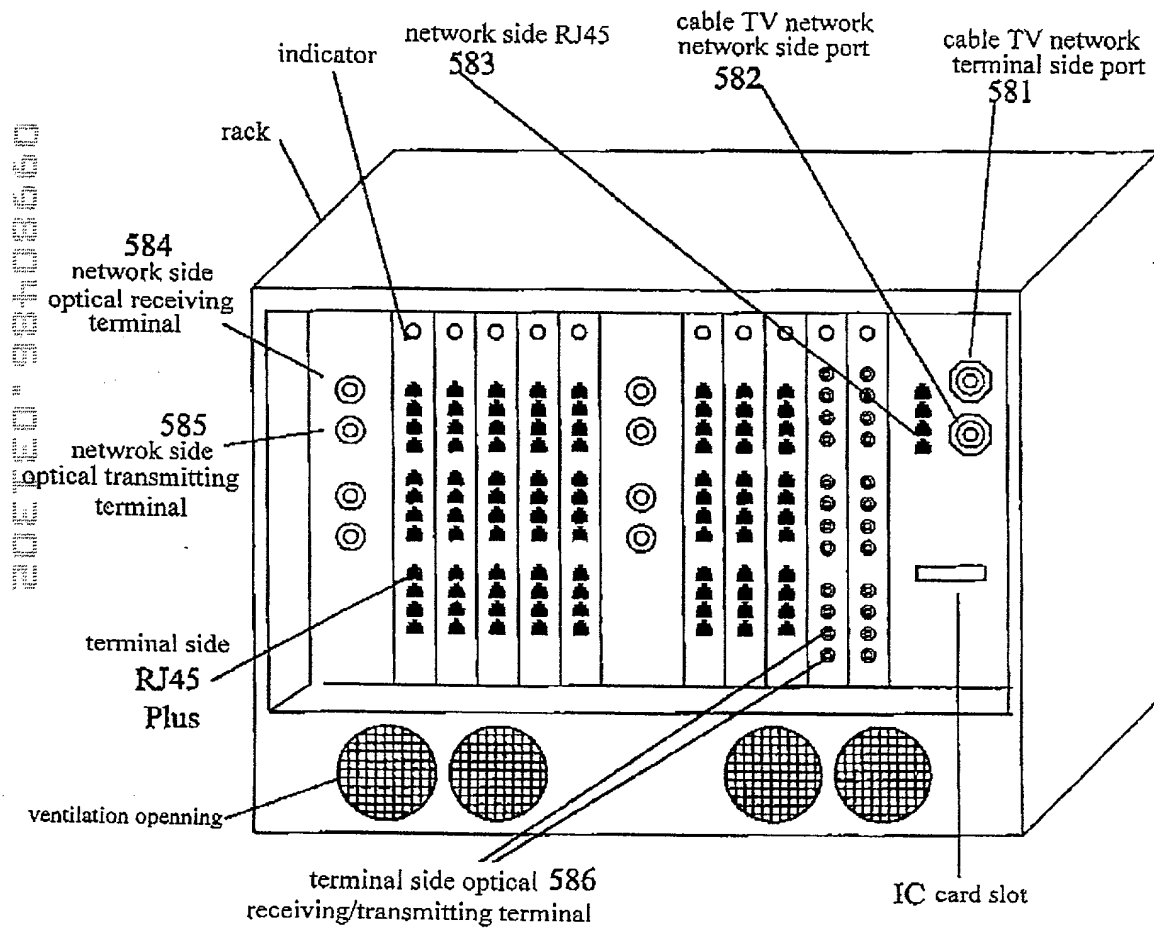


Fig. 2

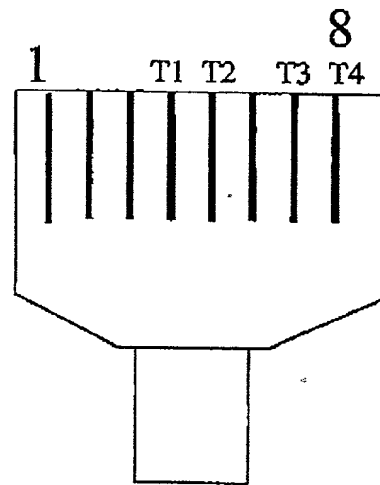


Fig. 3

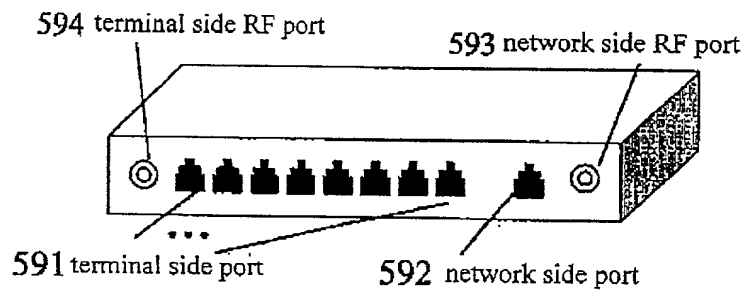


Fig. 4

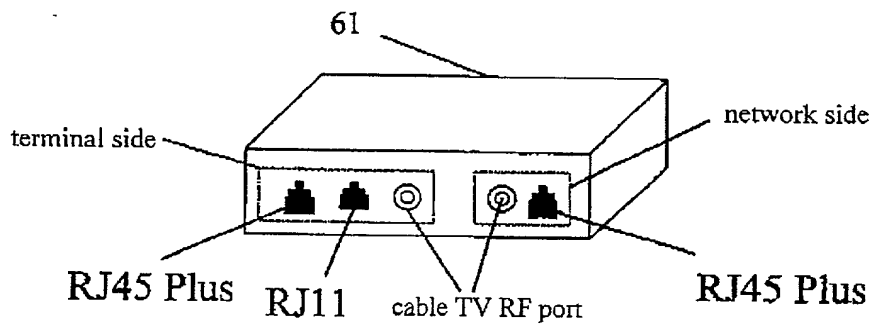


Fig. 5



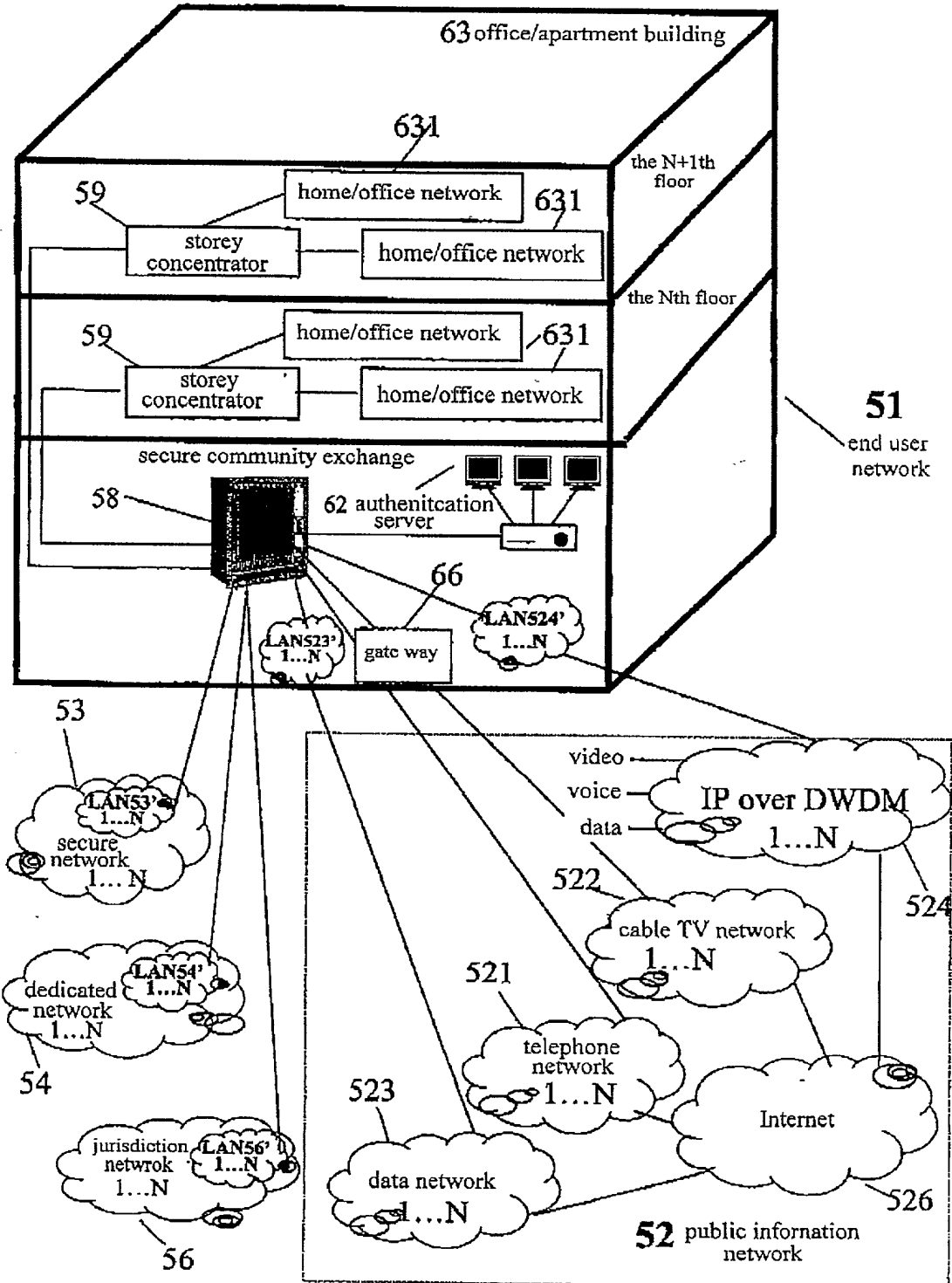


Fig. 6

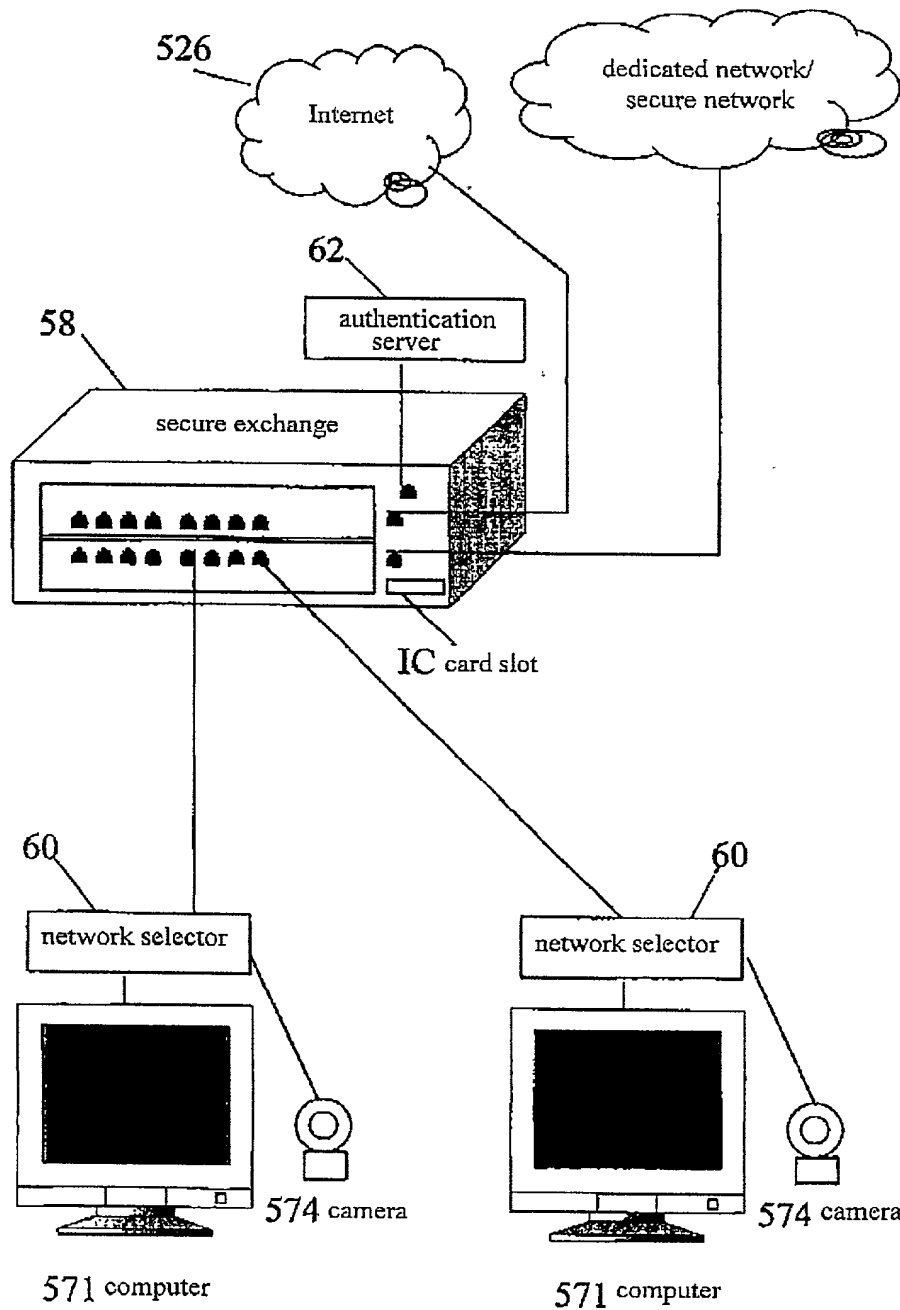


Fig. 6a

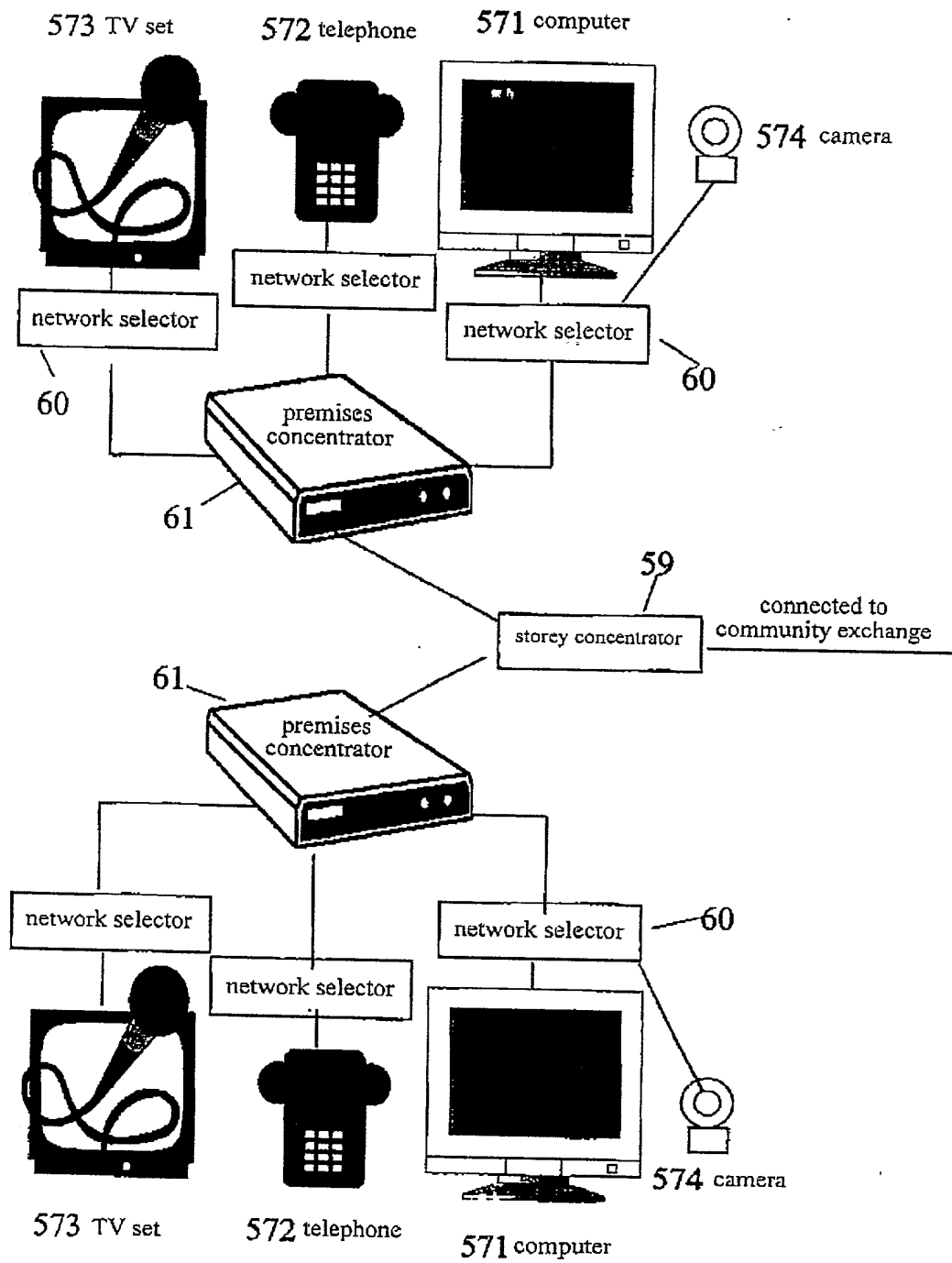


Fig. 7

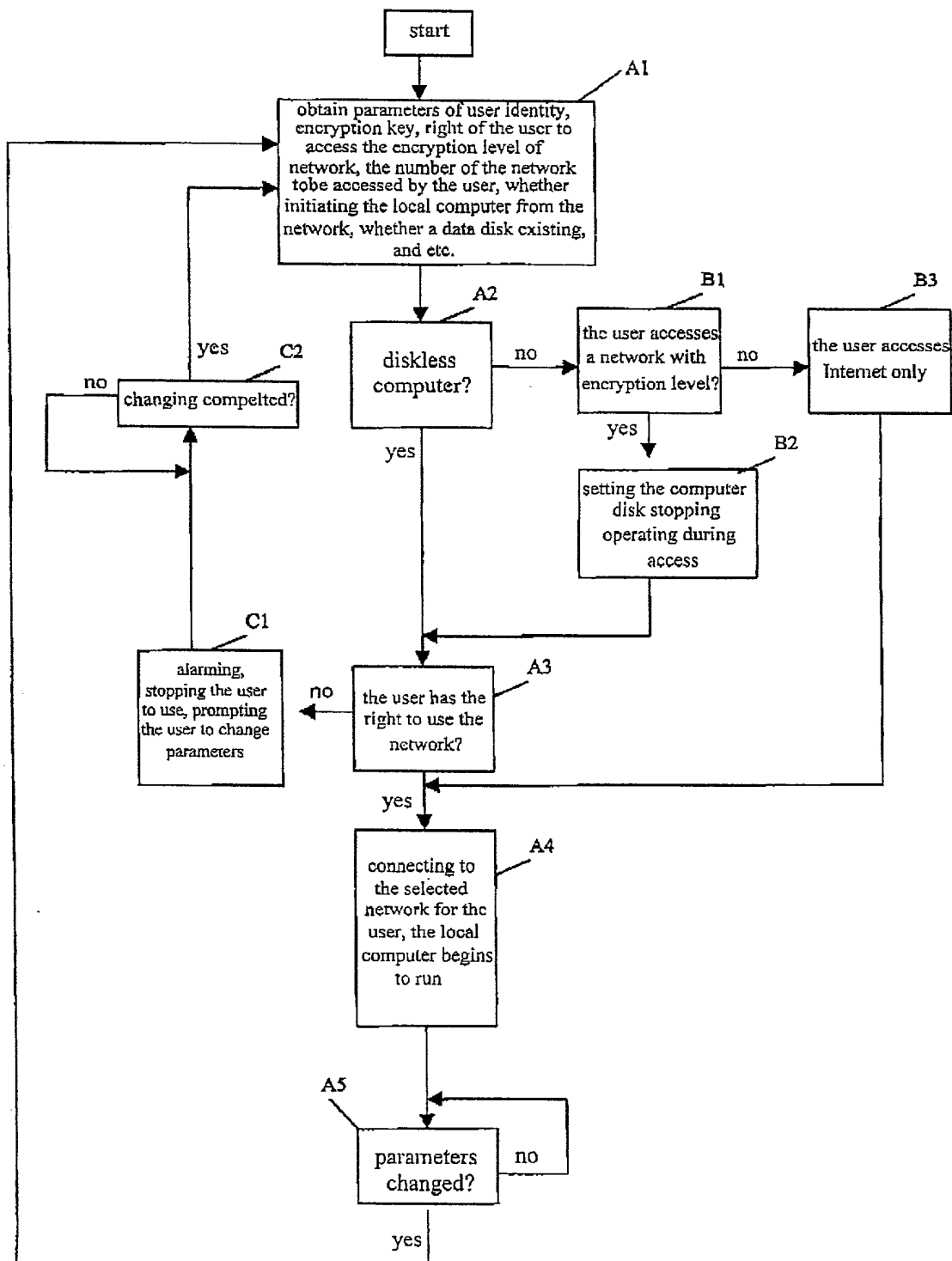


Fig.8

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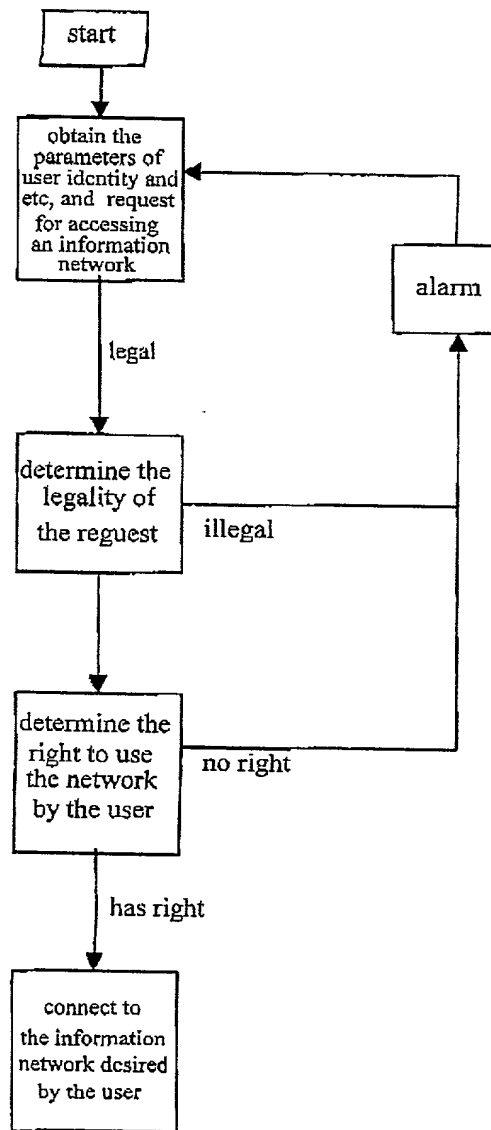


Fig.8a

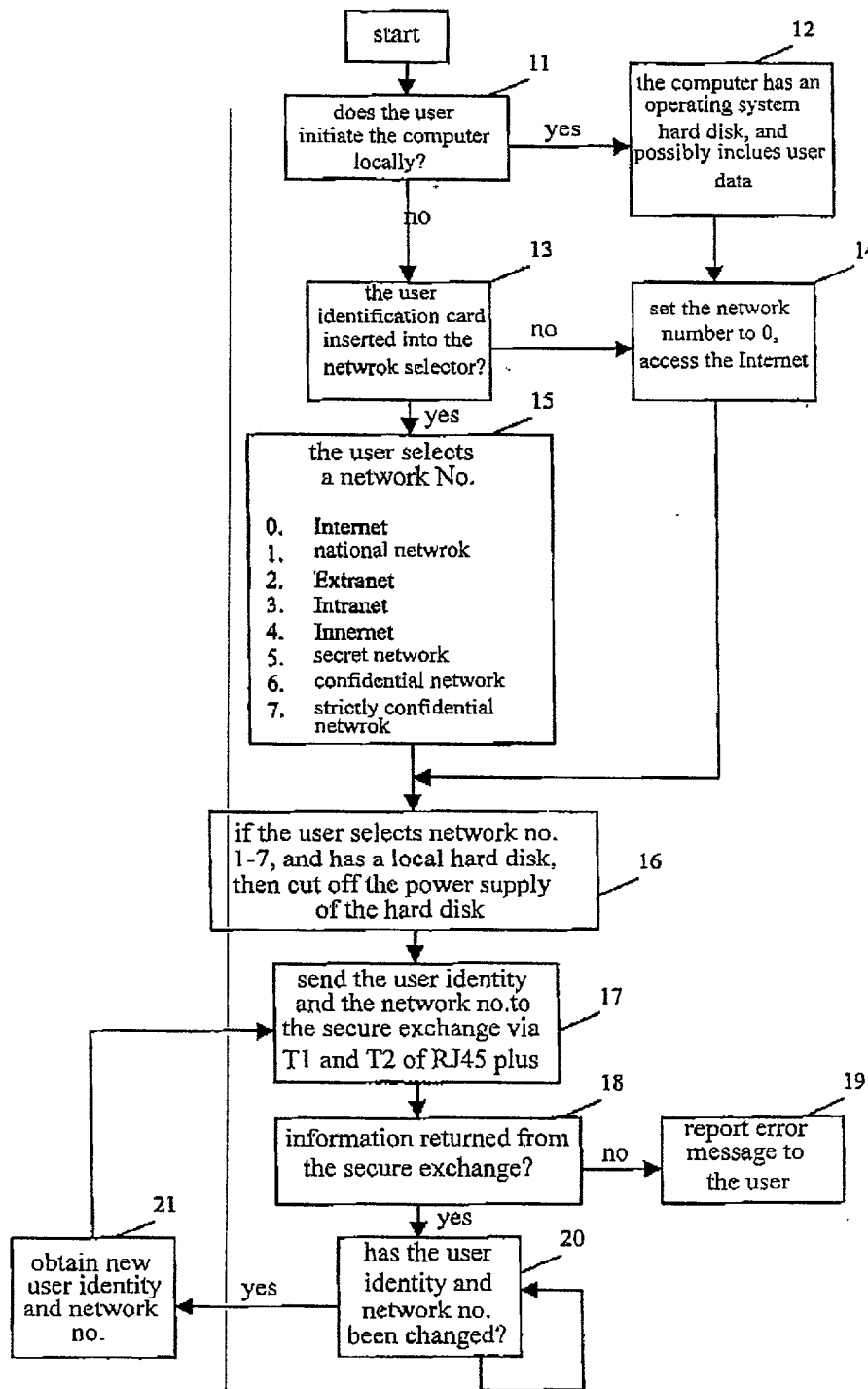


Fig.9

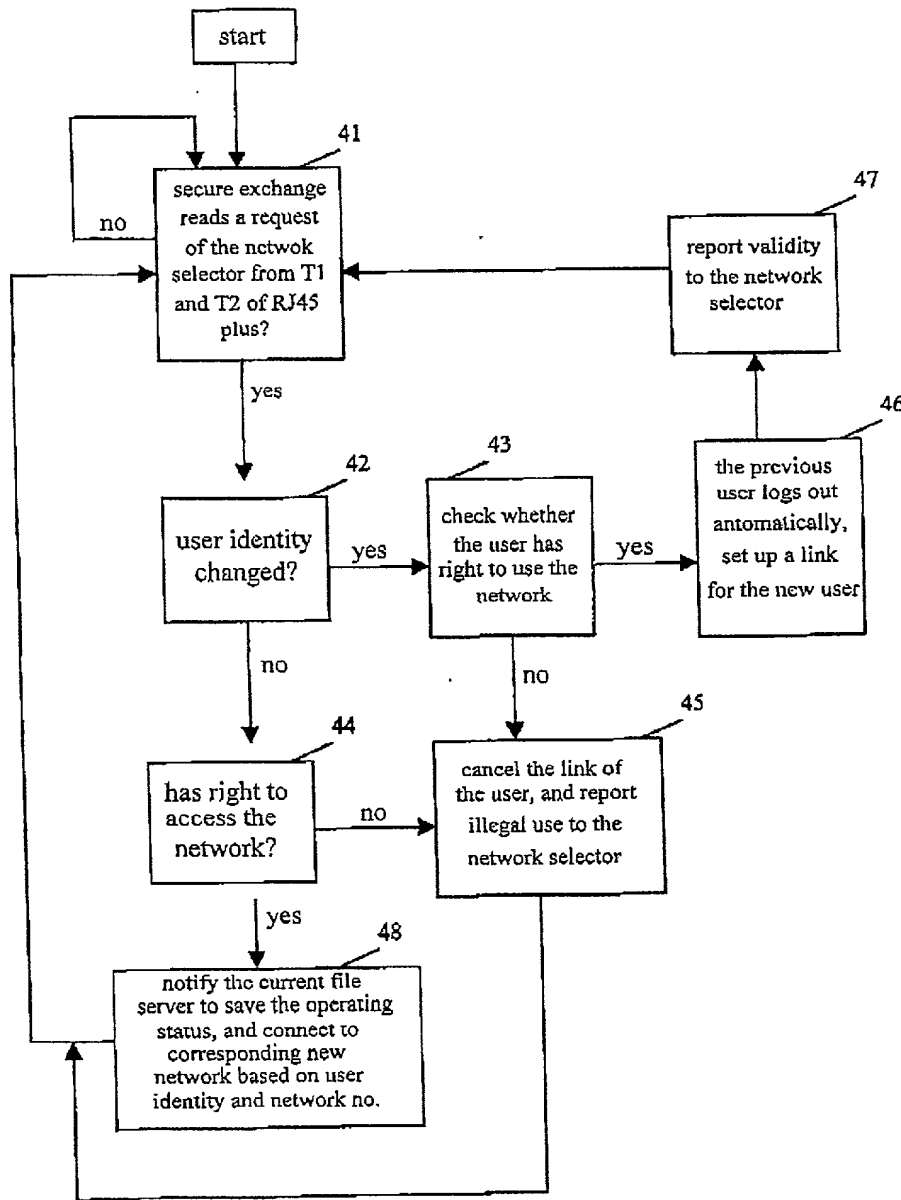


Fig.10

COMBINED DECLARATION AND POWER OF ATTORNEY  
FOR UTILITY PATENT APPLICATION (Includes PCT)Attorney Docket No.  
66402-007-5

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name; that

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural inventors are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**A SYSTEM ENABLING A USER TO SELECT INFORMATION NETWORKS  
AND A METHOD THEREOF**

the specification of which (check one): ☐ is attached hereto.

☐ was filed on \_\_\_\_\_ as Application Serial No. \_\_\_\_\_ and was amended on \_\_\_\_\_.

☒ was filed April 30, 2000 as PCT international application no. PCT/CN00/00100 and was amended under PCT Article 19 on \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

☒ I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

☒ I do not know and do not believe the claimed invention was ever known or used in the United States of America before my or our invention thereof, or patented or described in any printed publication in any country before my or our invention thereof or more than one year prior to this application, that the same was not in public use or on sale in the United States of America more than one year prior to this application, that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representatives or assigns more than twelve months prior to this application.

☒ I hereby claim foreign priority benefits under Title 35, United States Code §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application(s) on which priority is claimed:

Prior Foreign Application(s)

Priority Claimed

<u>99107920.5</u>	<u>CHINA</u>	<u>2 / JUNE/ 1999</u>	<input checked="" type="checkbox"/> <input type="checkbox"/>
(Number)	(Country)	Day/Month/Year Filed	Yes No

_____	_____	_____	<input type="checkbox"/> <input type="checkbox"/>
(Number)	(Country)	Day/Month/Year Filed	Yes No

I hereby claim the benefit under Title 35, United States Code, §119 (e) of any United States provisional application(s) listed below:

_____	_____	_____	_____
Application No.	Day/Month/Year Filed	Application No.	Day/Month/Year Filed

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) or PCT international application(s) designating the United States of America listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:



Application Serial No. \_\_\_\_\_

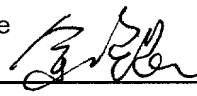
Filing Date \_\_\_\_\_

Status (patented, pending, abandoned) \_\_\_\_\_

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I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: Lawrence R. Radanovic, Reg. No. 23,077; Richard H. Tushin, Reg. No. 27,297; Donald N. Huff, Reg. No. 27,561; John P. DeLuca, Reg. No. 25,505; Sandra S. Snapp, Reg. No. 41,444; William A. Bonk, III, Reg. No. 40,251; Charles Rutherford, Reg. No. 18,933; Robert L. Kelly, Reg. No. 31,843; Ernest E. Helms, Reg. No. 29,724; John W. Rees, Reg. No. 38,278; William F. Kolakowski, Reg. No. 41,908; Maryann P. Perttunen, Reg. No. 46,987; Kristen N. Goodman, Reg. No. 48,583; Adam B. Strauss, Reg. No. 43,167, and all of Dykema Gossett PLLC. Direct all telephone calls to telephone no. **(202) 906-8600** and faxes to **(202) 906-8669**.

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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